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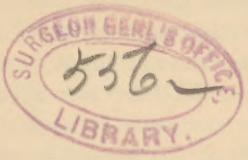

THE TREATMENT OF ECTOPIC GESTATION BY ABDOMINAL SECTION.*

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In considering the treatment of ectopic gestation by abdominal section, it is necessary to divide the subject so as to correspond to the several phases under which cases present themselves for operation.

I. *Prior to Rupture or Abortion.*—In the present state of our knowledge of the subject, the diagnosis of ectopic gestation before rupture must be largely presumptive rather than absolute. Comparatively few cases present symptoms of sufficient gravity to lead to a medical consultation before rupture. The differential diagnosis between the tubal enlargement of inflammation, or hydrosalpinx, and ectopic gestation is attended with many difficulties. After the fourth week of gestation, and with suppression of menstruation, the diagnosis of ectopic gestation, while presumptive, can be made with a reasonable degree of certainty. Numerous cases diagnosed as unruptured ectopic gestation, and verified by operation, are now a matter of record. As, however, the conditions from which unruptured ectopic gestation is differentiated with so much difficulty call for abdominal section and extirpation of the tube, this procedure is not only warrantable, but also strongly advisable, where even a suspicion of ectopic gestation exists. The greater the presumption of ectopic gestation, the more urgent must be the indication for operation. No delay in instituting operative measures should be tolerated. Having well in mind the appalling and frequently fatal results, the duty of the surgeon is unmistakable. No woman with an unruptured ectopic gestation is safe until the vessels of the tube have been tied.

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It would seem scarcely necessary, at the present day, to speak in further condemnation of the employment of electricity for the destruction of the life of the fœtus. The manipulation of the pregnant tube, necessary to the application of electricity, may be, and has been, the immediate cause of tubal rupture. If the fœtus is killed, the condition within the tube resembles incomplete tubal abortion, and, as in the latter case, may terminate in various ways, and the uncertainty of the method of termination should condemn the procedure. The ovum may be absorbed, and give rise to no further trouble; hæmorrhage into the tube, and through its unsealed abdominal ostium into the peritoneal cavity, with or without extrusion of the blighted ovum, may occur, with an immediate or subsequent fatal result to the patient; or the ovum, remaining unabsorbed and not causing hæmorrhage, may give rise to so much pain and inflammatory disturbance in and about the tube as to render the patient an invalid. It is scarcely necessary to further urge the advantages accruing from the prompt performance of abdominal section, with ligation of vessels and extirpation of the tube, as contrasted with the uncertainties of treatment by electricity and the extremely dangerous certainties of delay.

II. *Tubal Abortion.*—The termination of ectopic gestation by abortion from the tube is possible only within the first eight weeks of gestation. Closure of the tube is ordinarily completed by the eighth week, after which abortion can not occur. In the majority of cases of ectopic gestation, terminated at a regularly recurring menstrual period—that is, at the fourth week of gestation—the route followed by the hæmorrhage and the ovum is through the unclosed abdominal ostium of the tube. During the early weeks of gestation the attachment of the ovum to the tube, through the villi of the chorion, is slight, rendering the life of the ovum most precarious.

Tubal, like uterine, abortion may be either complete or incomplete. When the abortion, in the very early weeks, is complete, the hæmorrhage should cease and should not recur. On the other hand, when the separation of the ovum has been only partially accomplished, hæmorrhage, as in incomplete uterine abortion, is prone to either continue or to recur. The ultimate termination, in an uncertain number of these cases, be the abortion complete or incomplete, is by absorption of the blood and ovum, with recovery of the patient. Convalescence is, however, frequently prolonged through months or years, and is marked by many stormy and dangerous periods. At best, a diseased tube and many dense adhesions between the pelvic

and abdominal organs are left to menace the patient throughout the remainder of her life. For the immediate, as well as the ultimate, comfort and safety of the patient, operation should be instituted in all cases of tubal abortion accompanied by appreciable hæmorrhage, whether circumscribed or free, recurrent or non-recurrent.

Tubal abortion, with sudden free hæmorrhage, can not be differentiated from intraperitoneal rupture until the abdomen has been opened and the tube examined. The earlier the abortion takes place, the less will be the amount of hæmorrhage, provided the abortion is complete. The hæmorrhage and consequent formation of the hæmatocele in early abortion will be *gradual.* The operative treatment of tubal abortion, being practically the same as that for primary intraperitoneal rupture, will be considered in connection with the latter.

III. *Primary Intraperitoneal Rupture.*—A comparatively small proportion of the cases of ectopic gestation are brought to the attention of the surgeon at the time of primary intraperitoneal rupture. At this time he is placed in a position where clear judgment, diagnostic ability, and rapidity in thought and action are most necessary. Presuming that the diagnosis of hæmorrhage from rupture of a pregnant tube is accepted, the first question requiring positive answer relates to the direction of rupture. Is it intraperitoneal or extraperitoneal? A decision having been reached in favor of intraperitoneal rupture, immediate preparation for operation should be made. This must be followed in all cases of severe hæmorrhage by immediate abdominal section. The rule has been largely adopted of postponing operation until recovery from shock has occurred. In the strict observance of this rule many a life has been lost which might have been saved by an immediate operation during shock. If we consider the cause of the shock, the fallacy of the above rule will be evident. Shock in these cases means hæmorrhage, and hæmorrhage alone. To wait for recovery from shock may be to wait for the patient to die. Nature arrests the hæmorrhage when the heart only slightly feels the stimulus of the blood within its cavities. How much more surely, safely, and quickly can the surgeon arrest the hæmorrhage by a timely applied ligature. I would urge the necessity and practicability of immediate operation regardless of the degree of shock. Every moment of delay may mean increased hæmorrhage, more profound shock, and the rapid approach of death. I grant that the hæmorrhage, even when severe, with the patient's life in greatest jeopardy, may cease, and the patient rally from the shock. On the other hand, recovery from shock may not occur, or if it does occur it may be followed, at a greater or less

interval, by recurring and more severe hæmorrhage, and the patient may die before operation can possibly be made. It is the treacherous uncertainties which surround these cases that should prompt us to refuse to be tricked into a false sense of security and a policy of delay.

In view of the almost miraculous recoveries which have followed operation in patients apparently dying from hæmorrhage, it is questionable whether a surgeon is justified in refusing operation in any case of intraperitoneal hæmorrhage while life still exists. It requires only a very short time to open the abdomen and to grasp and secure by snap forceps the bleeding structures. Hæmorrhage is thus arrested, and an opportunity given to combat its effects. The heart's action must be maintained by stimulation. While heart stimulants, notably strychnine, should be freely employed hypodermically, the greatest stimulus to the heart is the distention of its cavities by blood, or a fluid of similar density. To produce and maintain this stimulation, the infusion of normal salt solution is strongly indicated. In this connection I would call attention to an error of no mean importance frequently made in the employment of the salt solution. In uncontrolled hæmorrhage the heart's action becomes progressively less effective from inability of the heart to contract firmly when its cavities are only partially filled with blood. This may result in an arrest of hæmorrhage from failure of the heart to propel the blood through the torn vessels. If in such a case, hæmorrhage having nearly or quite ceased, a quantity of salt solution is thrown into the vessels, increasing the quantity of circulating fluid, the heart cavities again become filled with blood, the heart is stimulated to renewed activity, and it at once proceeds to force more blood through the ruptured vessels. Normal salt solution should never be infused into the circulation until the bleeding vessels have been secured. Exposure of the vessels into which the salt solution is to be thrown may be made by an assistant while the abdomen is being opened. Immediately after arresting hæmorrhage from the ruptured tube the salt solution may be employed. Removal of the tube and such cleansing of the peritoneal cavity as may be advisable can then be done. Where rapidity of action is required, no route for approaching the tube is comparable with the abdominal.

IV. *Subsequent to Primary Intraperitoneal Rupture.*—Many cases of intraperitoneal rupture will be first seen days or weeks after the rupture. These are the cases attended by comparatively slight hæmorrhage. Although a few authenticated cases of complete absorption of the fœtus and blood, with restoration of health to the patient, have

been reported, this termination must be looked upon as uncommon, and its occurrence should not be expected or depended upon. The remarks which I have made in reference to the necessity of operation in all cases of intraperitoneal hæmorrhage from tubal abortion apply with equal, or even greater, force to hæmorrhage from rupture of the tube. In the event of moderate hæmorrhage, adhesions may form between the broad ligament, uterus, intestines, and omentum, and circumscribe the escaped blood. Lawson Tait denies that an hæmatocele may become so circumscribed, and holds that all cases described as such are, in fact, instances of rupture into the broad ligament with the formation of an extraperitoneal hæmatocele, with subsequent and consequent stripping up of the peritonæum from the pelvic wall, rectum, and uterus. I must differ most decidedly from this view. Intraperitoneal hæmatocele from tubal rupture may, I believe, become circumscribed as readily as one resulting from tubal abortion. The conditions are identical, except that in the one instance the product of impregnation escapes by a rupture of the tube, while in the other it escapes through the unclosed abdominal ostium. In the case of tubal abortion which I had the honor to present at the last meeting of this Society the hæmorrhage was circumscribed. Had the case been one of hæmorrhage into the broad ligament from rupture, the fimbriated extremity of the tube could not have opened into the circumscribed cavity. In this case, however, the patent abdominal ostium of the tube opened directly into the cavity of the hæmatocele, while the fimbriæ of the tube were spread out on the inner surface of the adventitious sac. Bland Sutton accepts, without question, the possibility of the hæmatocele becoming so circumscribed.

The decision of this question has a somewhat important bearing upon diagnosis and treatment. If, as Mr. Tait contends, all circumscribed hæmorrhages within the pelvis are beneath the broad ligament, the treatment would be expectant, operation not being performed except in case of recurring hæmorrhage, continued life and growth of the fœtus, or suppuration of the hæmatoma. On the other hand, recognizing that an intraperitoneal hæmatocele may become circumscribed, it becomes necessary, in the presence of a distinctly limited hæmorrhage, to establish a differential diagnosis between circumscribed intraperitoneal hæmatocele and broad-ligament hæmatoma. While a broad-ligament hæmatoma should, in the ordinary course of events, be left undisturbed, an intraperitoneal hæmatocele must, in the great majority of cases, be subjected to operation.

In operating for circumscribed intraperitoneal hæmorrhage, the

abdominal route offers far better opportunities for clean and thorough work than does the vaginal. The adhesions can not be safely dealt with through the vagina, nor can the diseased structures be completely removed without jeopardizing the integrity of the intestines.

V. *Primary Extraperitoneal Rupture.*—Operation is seldom, if ever, called for at the time of, or immediately following, extraperitoneal rupture. The hæmorrhage takes place, not into a cavity, but among the tissues, which serve as limiting walls, and prevent sudden, excessive hæmorrhage. Such cases demand careful investigation to ascertain, as accurately as possible for future comparison, the extent of the hæmorrhage and the relations and size of the resultant tumor. Examinations must be subsequently made at short intervals to determine whether the hæmatoma is increasing or diminishing.

VI. *Subsequent to Primary Extraperitoneal Rupture; Fœtus Living.*—If repeated examinations demonstrate a progressive enlargement of the hæmatoma, a presumptive diagnosis of continued life and development of the fœtus is warranted. If the fœtus can be made out, and its growth demonstrated, the diagnosis becomes positive. In the event of the continued life of the fœtus, its removal by abdominal section should be accomplished without delay. Abdominal section for removal of the fœtus before the completion of the fourth month of gestation, while difficult and hazardous, can not compare, either in difficulty or hazard, with the operation when performed after this time. Owing to the growth of the placenta and the encroachment of the sac upon the surrounding structures, it then becomes one of the most trying and dangerous operations known to surgery. Secondary intraperitoneal rupture may take place at any time, and, if the placenta lies above the fœtus and is torn or partially dislodged, a most profuse hæmorrhage may occur, and the patient may die before measures for her relief can be adopted. To save the mother from both the extreme dangers of a late operation and the frequently fatal results of a secondary intraperitoneal rupture, operation should be at once performed when the continued development of the child is demonstrated.

In operation prior to the fifth month, after ligation of the ovarian artery, incision of the sac, and removal of the fœtus, a choice must be made between a number of procedures, depending upon the nature of the case. Much will depend upon the condition of the sac and the location of the placenta. The most satisfactory and clean procedure, and the one especially indicated in an early operation, is the stripping of the placenta and membranes from the sac, ligation of bleeding

points, and quilting together of the layers of the broad ligament. This method, so far as it relates to the removal of the placenta, becomes a necessity, in either an early or late operation, when the placenta lies above the fœtus and is cut or dislodged during operation.

When the sac is not too friable, and the hæmorrhage, after removal of the placenta and membranes, can not be arrested by ligation of the vessels, or when the hæmorrhage is too free to permit of search for, and ligation of, bleeding points, the sac should be stitched to the edges of the abdominal incision and packed with iodoform gauze.

If the placenta is situated below the fœtus, has an extensive and firm attachment, and its separation promises to be attended with severe hæmorrhage, the sac may be stitched to the edges of the incision, the fœtus removed, and the placenta left *in situ*. The sac must then be packed with iodoform gauze, and extreme precautions must be taken to prevent infection of the placenta. On the fourth or fifth day, if not earlier indicated by evidences of decomposition of the placenta, the gauze should be withdrawn and the placenta removed. Its removal at this time can usually be accomplished without much hæmorrhage. If the operator prefers to assume the risks of suppuration of the placenta, he may, after removal of the fœtus, cut the cord close to the placenta and leave the latter within the sac, closing the abdominal incision without drainage in the hope of absorption of the placenta taking place. I can not but look upon this procedure as both unsurgical and dangerous.

After the fourth month, owing to the increased size and extensive attachments of the placenta, and to the stripping up of the peritonæum from off the uterus, rectum, bladder, and abdominal wall, operation becomes most formidable. Here also much depends upon the location of the placenta as regards that of the fœtus. If the placenta be below the fœtus and attached to the pelvic floor, the fœtus may be removed with but slight hæmorrhage. If the placenta is so favorably located it may be left *in situ* for four or five days, when its removal can be much more readily and safely accomplished. When situated above the fœtus, and cut or torn in opening the sac, the placenta must be quickly and boldly detached and hæmorrhage controlled by plugging the sac with gauze and by the ligation of the vessels that can be reached. When operating in the late months, an extraperitoneal incision into the sac is advisable whenever possible, unless the complete removal of the fœtus, placenta, and sac has been decided upon.

This latter procedure, which has been performed in less than a

score of cases, while most difficult, certainly more nearly approaches the ideal than does any operation which contemplates leaving the placenta *in situ* even for a few days. The underlying principle of this procedure consists in considering the fœtal sac as an intraligamentary cyst and treating it according to the methods adopted for this condition. After ligation of the ovarian artery, a free incision is made through the peritonæum of the broad ligament, care being taken not to incise the fœtal sac. Enucleation of the sac is then effected. Hæmorrhage from the placental attachment, while free, is not ordinarily excessive, and can be controlled by gauze packing. When the fœtal sac is ruptured during its enucleation, hæmorrhage is usually severe, and must be met by compression of the abdominal aorta and most rapid enucleation. After enucleation, gauze must be firmly packed against all bleeding points. This method of operation, although it promises better results, can not be advocated at the present time, as it has been employed in so limited a number of cases.

VII. *Secondary Intraperitoneal Rupture.*—When this occurs soon after primary extraperitoneal rupture, the immediate necessity for and the method of treatment indicated are practically the same as in primary intraperitoneal rupture. In late secondary rupture the methods advocated for the management of late cases of extraperitoneal gestation without rupture are to be employed. Immediate removal of the placenta is, however, generally a necessity.

VIII. *Subsequent to Death of the Fœtus.*—A dead fœtus, especially if death has occurred in the early months, may remain safely sepultured within the tissues for months or years without the production of dangerous symptoms. It will rarely, however, so remain without producing annoyance and pain. Sooner or later, in the majority of cases, operation must be instituted for its removal. A fœtus which has remained quietly within the broad ligament for years may become infected, suppurate, and have to be removed. The further advanced the gestation at the time of death, the greater becomes the probability of subsequent infection and suppuration of the fœtus. Vaginal incision is preferable to abdominal section in these cases of suppuration.

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